

That Which is Claimed is:

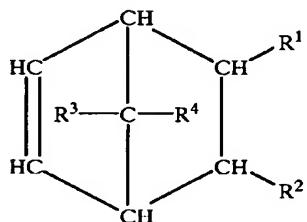
1. A ink absorbing substrate suitable for use in inkjet printing systems, the substrate comprising at least one continuous fiber bonded to itself at points of contact to form a substantially self-sustaining structure for retaining ink, the continuous fiber comprising a bicomponent fiber having a core material and a sheath material at least partially surrounding the core material, the core material comprising a crystalline thermoplastic polymer and the sheath material comprising low density polyethylene modified with a cycloolefin copolymer.

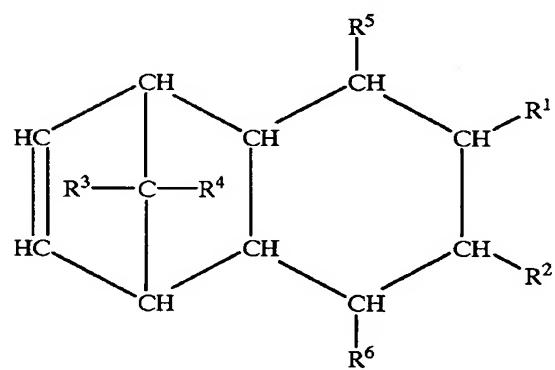
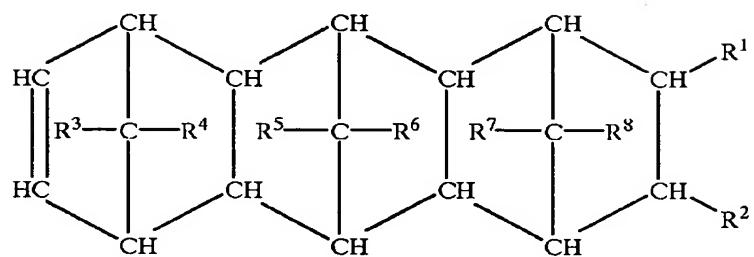
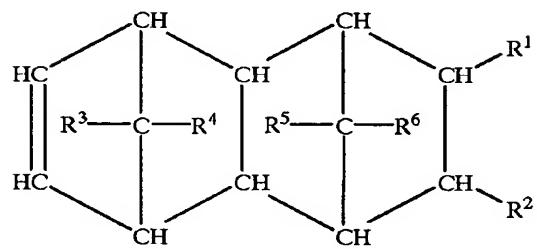
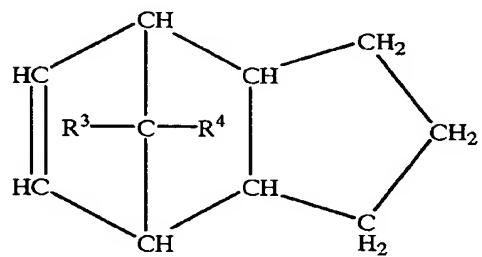
2. The ink absorbing substrate according to Claim 1, wherein said fiber has a shape selected from the group consisting of circular, oval, cross or x-shaped, trilobal, and h-shaped.

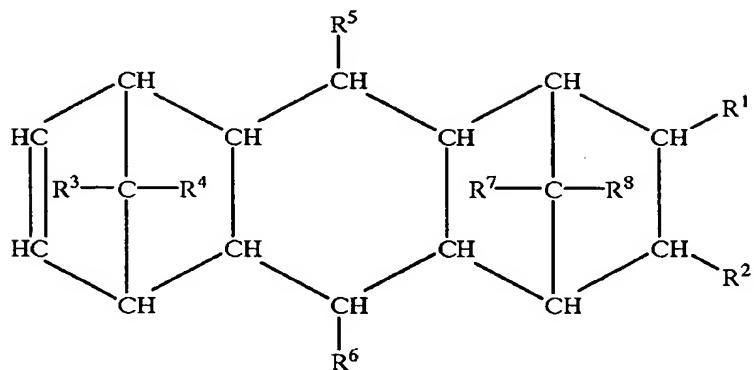
3. The ink absorbing substrate according to Claim 1, where said fibers are formed using a melt blown fiber process.

4. The ink absorbing substrate according to Claim 1, wherein said crystalline thermoplastic polymer of the core material is selected from the group consisting of high density polyethylene terephthalate, polyamides and polypropylene.

5. The ink absorbing substrate according to Claim 1, wherein the cycloolefin copolymer, based on the total weight thereof comprises 1 to 99% by weight of at least one cyclic olefin of the formula (I), (II), (III), (IV), (V), (VI) or (VII), wherein R¹ to R⁸ are the same or different and each is hydrogen atom or a hydrocarbon group having 1 to 20 carbon atoms, provided that at least two of R¹ to R⁸ may form a ring, and n in the formula (VII) is an integer of 2 to 10; 99 to 1% by weight of at least one non-cyclic olefin, wherein R⁹ to R¹² are the same or different and each is hydrogen atom or a hydrocarbon group having 1 to 20 carbon atoms, and







6. The ink absorbing substrate according to Claim 1, wherein the cycloolefin copolymer is a copolymer of a cyclic olefin having a norbornene-based structure.

7. The ink absorbing substrate according to Claim 1, wherein the cycloolefin copolymer has a viscosity number of 25 to 200 ml/g.

8. A ink absorbing substrate suitable for use in inkjet printing systems, the substrate comprising at least one continuous fiber bonded to itself at points of contact to form a substantially self-sustaining structure for retaining ink, the continuous fiber comprising a bicomponent fiber having a core material comprising polypropylene and a sheath material comprising 0 to 100 percent by weight low density polyethylene and 0.1 to 100 percent cycloolefin copolymer.

9. A ink absorbing substrate suitable for use in inkjet printing systems, the substrate comprising at least one continuous fiber bonded to itself at points of contact to form a substantially self-sustaining structure for retaining ink, the continuous fiber comprising a bicomponent fiber having a core material comprising polypropylene and a sheath material comprising 0 to 100 percent by weight low density polyethylene and 0.1 to 100 percent cycloolefin copolymer.

10. An ink container for providing ink to an inkjet printhead, the ink container comprising:

a reservoir for containing the ink, the ink container when inserted into a printing system having a top and a bottom relative to a gravitational frame of reference, the ink container further including a fluid outlet proximate the bottom of the ink container for permitting ink flow from the reservoir to the printhead, the reservoir having a rectangular configuration; and

an ink absorbing substrate having a rectangular configuration, said member disposed in said reservoir for generating a capillary force on the ink in the reservoir, said ink absorbing member including at least one continuous fiber defining a three dimensional porous member with the at least one continuous fiber bonded to itself at points of contact to form a self sustaining structure for retaining the ink and is disposed within the reservoir, the continuous fiber comprising, a bicomponent fiber having a core material and a sheath material at least partially surrounding the core material, the core material comprising a crystalline thermoplastic polymer and the sheath material comprising low density polyethylene modified with a cycloolefin copolymer wherein ink drawn from the self sustaining structure is provided to the inkjet printhead, said ink absorbing member having a general fiber orientation in a direction parallel to said bottom of said reservoir.

11. A method of providing ink to an ink reservoir for use in an inkjet printing system, the method comprising:

providing an ink reservoir having a network of fibers disposed therein, the fibers comprising bicomponent fibers having a core material and a sheath material at least partially surrounding the core material, the core material comprising a crystalline thermoplastic polymer and the sheath material comprising low density polyethylene modified with a cycloolefin copolymer. the network of fibers being heat fused to each other to define intercommunicating interstitial spaces, the reservoir having a rectangular configuration with a height dimension, a width dimension and a length dimension, each of said dimensions greater than one inch, and wherein the ink reservoir when installed into an ink jet printing system has a top and a bottom relative to a gravitational frame of reference, the ink reservoir further including a fluid outlet proximate the bottom of the ink reservoir, and said network of fibers has a general fiber orientation in a direction parallel to said bottom;

providing ink to the ink reservoir;

drawing the ink provided to the ink reservoir into the intercommunicating interstitial spaces by means of capillary action.

12. An ink container for providing ink to an inkjet printhead, the ink container comprising:

a reservoir for containing the ink, the ink container when inserted into a printing system having a top and a bottom relative to a gravitational frame of reference, the ink container further including a fluid outlet proximate the bottom of the ink container for permitting ink flow from the reservoir to the printhead, the reservoir having a rectangular configuration with a height dimension, a width dimension and a length dimension, and wherein each of said dimensions is greater than one inch; and

an ink absorbing member disposed in said reservoir for generating a capillary force on the ink in the reservoir, said ink absorbing member including at least one continuous fiber defining a three dimensional porous member with the at least one continuous fiber bonded to itself at points of contact to form a rectangular, self sustaining structure for retaining the ink, the continuous fibers comprising biocomponent fibers having a core material and a sheath material at least partially surrounding the core material, the core material comprising a crystalline thermoplastic polymer and the sheath material comprising low density polyethylene modified with a cycloolefin copolymer wherein ink drawn from the self sustaining structure is provided to the inkjet printhead, said ink absorbing member having a rectangular configuration having a length dimension, a height dimension and a width dimension, each of said dimensions greater than one inch, said ink absorbing member having a general fiber orientation in a direction parallel to said bottom of said reservoir.

13. An ink container for providing ink to an inkjet printhead, the ink container comprising:

a reservoir for containing the ink, the ink container when inserted into a printing system having a top and a bottom relative to a gravitational frame of reference, the ink container further including a fluid outlet proximate the bottom of the ink container for permitting ink flow from the reservoir to the printhead, the reservoir having a rectangular configuration; and

an ink absorbing substrate having a rectangular configuration, said member disposed in said reservoir for generating a capillary force on the ink in the reservoir, said ink absorbing member including at least one continuous fiber defining a three dimensional porous member

with the at least one continuous fiber bonded to itself at points of contact to form a self sustaining structure for retaining the ink and is disposed within the reservoir, the continuous fiber comprising, a bicomponent fiber having a core material and a sheath material at least partially surrounding the core material, the core material comprising a crystalline thermoplastic polymer and the sheath material comprising low density polyethylene modified with a cycloolefin copolymer wherein ink drawn from the self sustaining structure is provided to the inkjet printhead, said ink absorbing member having a general fiber orientation in a direction parallel to said bottom of said reservoir.

14. A primary ink storage device for providing ink to an inkjet printhead, the primary ink storage device comprising:

a reservoir for containing ink, the reservoir having a fluid outlet therein, the ink container when inserted into a printing system having a top and a bottom relative to a gravitational frame of reference, the ink container further including a fluid outlet proximate the bottom of the ink container for permitting ink flow from the reservoir to the printhead, the reservoir having a rectangular configuration with a height dimension, a width dimension and a length dimension, and wherein each of said dimensions is greater than one inch; and

a network of fibers disposed within the reservoir to retain ink, the network of fibers being heat fused to each other to define a rectangular, self-sustaining ink absorbing substrate for storing ink within the reservoir wherein ink drawn from the network of fibers is provided to the inkjet printhead the fibers comprising b: component fibers having a core material and a sheath material at least partially surrounding the core material, the core material comprising a crystalline thermoplastic polymer and the sheath material comprising low density polyethylene modified with a cycloolefin copolymer, the ink absorbing substrate having a rectangular configuration with a height dimension, a width dimension and a length dimension, and wherein each of said dimensions is greater than one inch, said network of fibers having a general fiber orientation in a direction parallel to said bottom of said container.

15. A method of providing ink to an ink reservoir for use in an inkjet printing system, the method comprising:

providing an ink reservoir having a network of fibers disposed therein, the fibers comprising bicomponent fibers having a core material and a sheath material at least partially surrounding the core material, the core material comprising a crystalline thermoplastic

polymer and the sheath material comprising low density polyethylene modified with a cycloolefin copolymer, the network of fibers being heat fused to each other to define intercommunicating interstitial spaces, the reservoir having a rectangular configuration with a height dimension, a width dimension and a length dimension, each of said dimensions greater than one inch, and wherein the ink reservoir when installed into an ink jet printing system has a top and a bottom relative to a gravitational frame of reference, the ink reservoir further including a fluid outlet proximate the bottom of the ink reservoir, and said network of fibers has a general fiber orientation in a direction parallel to said bottom;

providing ink to the ink reservoir;

drawing the ink provided to the ink reservoir into the intercommunicating interstitial spaces by means of capillary action.

16. An ink container for providing ink to an inkjet printhead, the ink container comprising:

a reservoir for containing the ink, the ink container when inserted into a printing system having a top and a bottom relative to a gravitational frame of reference, the ink container further including a fluid outlet proximate the bottom of the ink container for permitting ink flow from the reservoir to the printhead, the reservoir having a rectangular configuration with a height dimension, a width dimension and a length dimension, and wherein each of said dimensions is greater than one inch; and

an ink absorbing member disposed in said reservoir for generating a capillary force on the ink in the reservoir, said ink absorbing member including at least one continuous fiber defining a three dimensional porous member with the at least one continuous fiber bonded to itself at points of contact to form a rectangular, self sustaining structure for retaining the ink, the continuous fibers comprising biocomponent fibers having a core material and a sheath material at least partially surrounding the core material, the core material comprising a crystalline thermoplastic polymer and the sheath material comprising low density polyethylene modified with a cycloolefin copolymer wherein ink drawn from the self sustaining structure is provided to the inkjet printhead, said ink absorbing member having a rectangular configuration having a length dimension, a height dimension and a width dimension, each of said dimensions greater than one inch, said ink absorbing member having a general fiber orientation in a direction parallel to said bottom of said reservoir.

17. A method of providing ink to an ink reservoir for use in an inkjet printing system, the method comprising:

providing an ink reservoir having a rectangular, self-sustaining network of fibers disposed therein said fibers comprising bicomponent fibers having a core material and a sheath material at least partially surrounding the core material, the core material comprising a crystalline thermoplastic polymer and the sheath material comprising low density polyethylene modified with a cycloolefin copolymer, the network of fibers having a length dimension, a height dimension and a width dimension, each of said dimensions greater than one inch, said fibers being heat fused to each other to define intercommunicating interstitial spaces, the reservoir having a rectangular configuration with a height dimension, a width dimension and a length dimension, each of said dimensions greater than one inch, and wherein the ink reservoir when installed into an ink jet printing system has a top and a bottom relative to a gravitational frame of reference, the ink reservoir further including a fluid outlet proximate the bottom of the ink reservoir, and said network of fibers has a general fiber orientation in a direction parallel to said bottom;

providing ink to the ink reservoir;

drawing the ink provided to the ink reservoir into the intercommunicating interstitial spaces by means of capillary action.